

# User Manual

Revision 1.000  
English

## M-Bus Slave / Serial - Converter

(Order Code: HD67018-B2)

For Website information:

[www.adfweb.com?Product=HD67018](http://www.adfweb.com?Product=HD67018)

For Price information:

[www.adfweb.com?Price=HD67018-B2](http://www.adfweb.com?Price=HD67018-B2)

### Benefits and Main Features:

- ✚ Very easy to configure
- ✚ Temperature range: -40°C/+85°C (-40°F/+185°F)

For others M-Bus products see also the following link:

#### Converter M-Bus Master to

<a href="http://www.adfweb.com?Product=HD67021">www.adfweb.com?Product=HD67021</a>	(RS232)
<a href="http://www.adfweb.com?Product=HD67022">www.adfweb.com?Product=HD67022</a>	(RS485)
<a href="http://www.adfweb.com?Product=HD67024">www.adfweb.com?Product=HD67024</a>	(USB)
<a href="http://www.adfweb.com?Product=HD67030">www.adfweb.com?Product=HD67030</a>	(Ethernet)

#### M-Bus Analyzer - Scanner - Sniffer

[www.adfweb.com?Product=HD67031](http://www.adfweb.com?Product=HD67031)

#### M-Bus - Repeater - Isolator

[www.adfweb.com?Product=HD67032M](http://www.adfweb.com?Product=HD67032M)

#### Converter - M-Bus Master /

<a href="http://www.adfweb.com?Product=HD67029M-485">www.adfweb.com?Product=HD67029M-485</a>	(Modbus Slave)
<a href="http://www.adfweb.com?Product=HD67044">www.adfweb.com?Product=HD67044</a>	(Modbus TCP Slave)
<a href="http://www.adfweb.com?Product=HD67051-B2">www.adfweb.com?Product=HD67051-B2</a>	(CANopen)
<a href="http://www.adfweb.com?Product=HD67053M">www.adfweb.com?Product=HD67053M</a>	(PROFIBUS)
<a href="http://www.adfweb.com?Product=HD67056-B2">www.adfweb.com?Product=HD67056-B2</a>	(BACnet Slave)
<a href="http://www.adfweb.com?Product=HD67058M">www.adfweb.com?Product=HD67058M</a>	(DeviceNet Slave)
<a href="http://www.adfweb.com?Product=HD67077-B2">www.adfweb.com?Product=HD67077-B2</a>	(EtherNet/IP Slave)
<a href="http://www.adfweb.com?Product=HD67078-B2">www.adfweb.com?Product=HD67078-B2</a>	(PROFINET)

#### M-Bus - Concentrator - Datalogger

[www.adfweb.com?Product=HD67054M](http://www.adfweb.com?Product=HD67054M)

#### M-Bus Slave / Modbus Master - Converter

[www.adfweb.com?Product=HD67059M-232](http://www.adfweb.com?Product=HD67059M-232)

Do you have an your customer protocol?

[www.adfweb.com?Product=HD67003](http://www.adfweb.com?Product=HD67003)

Do you need to choose a device? do you want help?

[www.adfweb.com?Cmd=helpme](http://www.adfweb.com?Cmd=helpme)



User Manual

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## UPDATED DOCUMENTATION:

Dear customer, we thank you for your attention and we remind you that you need to check that the following document is:

- ✦ Updated
- ✦ Related to the product you own

To obtain the most recently updated document, note the “document code” that appears at the top right-hand corner of each page of this document.

With this “Document Code” go to web page [www.adfweb.com/download/](http://www.adfweb.com/download/) and search for the corresponding code on the page. Click on the proper “Document Code” and download the updates.

## REVISION LIST:

Revision	Date	Author	Chapter	Description
1.000	28/04/2014	FI	All	First Release

## WARNING:

ADFweb.com reserves the right to change information in this manual about our product without warning.

ADFweb.com is not responsible for any error this manual may contain.

## TRADEMARKS:

All trademarks mentioned in this document belong to their respective owners.

**SECURITY ALERT:****GENERAL INFORMATION**

To ensure safe operation, the device must be operated according to the instructions in the manual. When using the device, legal and safety regulation are required for each individual application. The same applies also when using accessories.

**INTENDED USE**

Machines and systems must be designed so the faulty conditions do not lead to a dangerous situation for the operator (i.e. independent limit switches, mechanical interlocks, etc.).

**QUALIFIED PERSONNEL**

The device can be used only by qualified personnel, strictly in accordance with the specifications. Qualified personnel are persons who are familiar with the installation, assembly, commissioning and operation of this equipment and who have appropriate qualifications for their job.

**RESIDUAL RISKS**

The device is state-of-the-art and is safe. The instruments can represent a potential hazard if they are inappropriately installed and operated by untrained personnel. These instructions refer to residual risks with the following symbol:

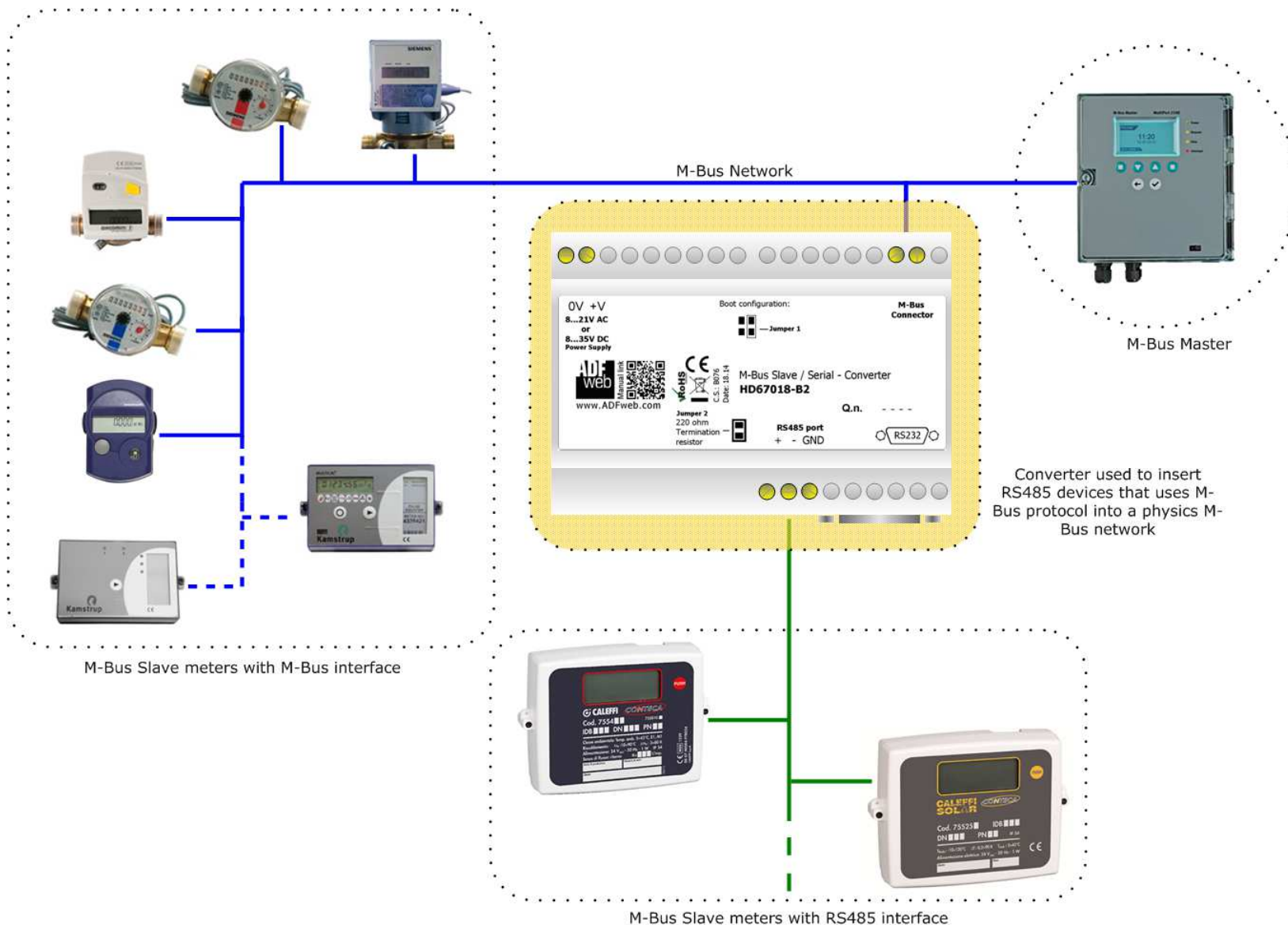


This symbol indicates that non-observance of the safety instructions is a danger for people that could lead to serious injury or death and / or the possibility of damage.

**CE CONFORMITY**

The declaration is made by our company. You can send an email to [support@adfweb.com](mailto:support@adfweb.com) or give us a call if you need it.

### EXAMPLE OF CONNECTION:



## CONNECTION SCHEME:

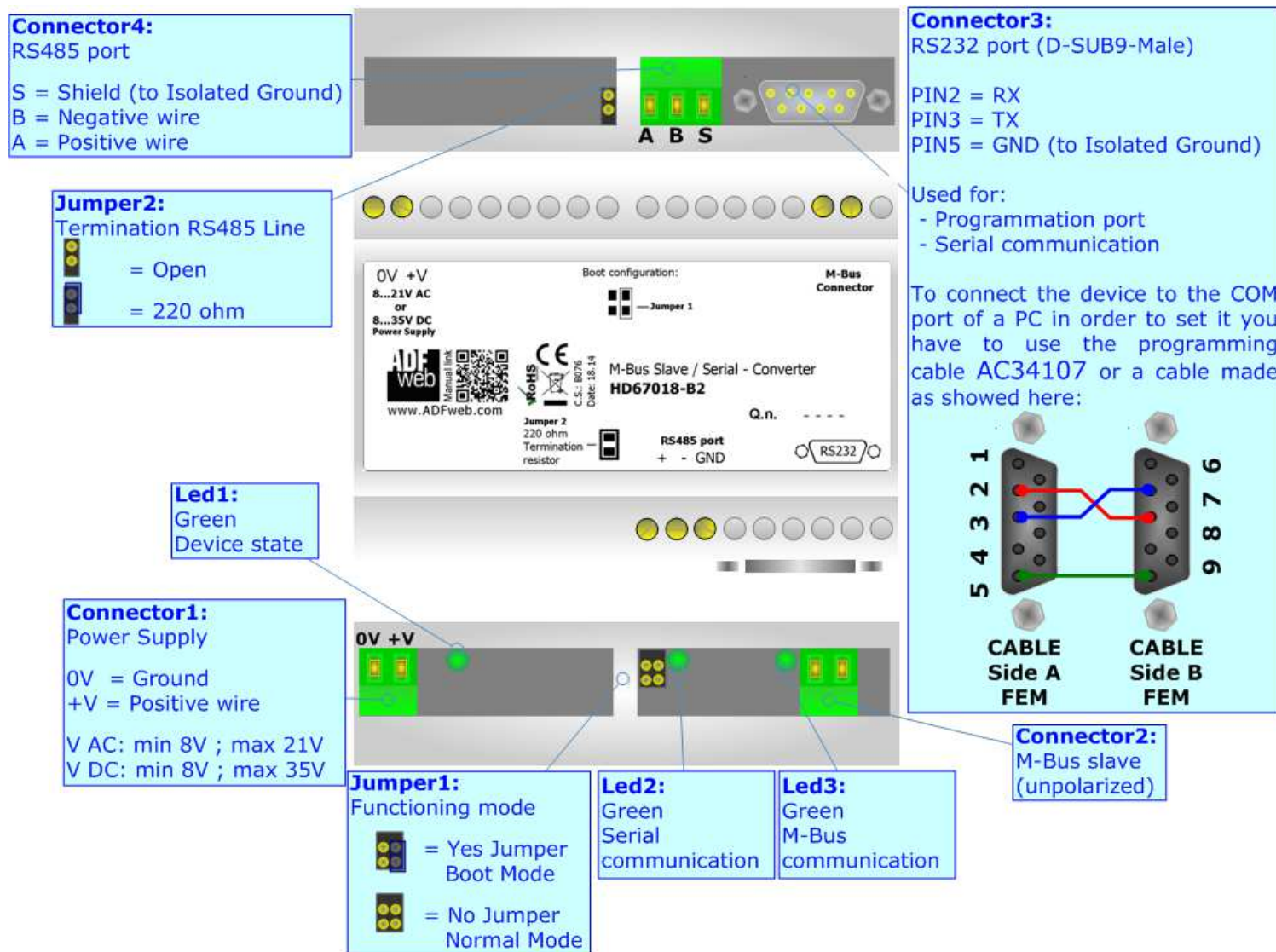


Figure 1: Connection scheme for HD67018-B2

**CHARACTERISTICS:**

The HD67018-B2 is a M-Bus Slave / Serial - Converter. It allows to insert RS232/RS485 devices that uses M-Bus protocol into a M-Bus physics network.

It allows for the following characteristics:

- Two-directional information between M-Bus bus and Serial RS232/RS485 bus;
- Mountable on 35mm Rail DIN;
- Wide power supply input range: 8...21V AC or 8...35V DC;
- Wide temperature range: -40°C / 85°C [-40°F / +185°F].



**CONFIGURATION:**

You need Compositor SW67018 software on your PC in order to perform the following:

- Define the parameters of M-Bus line;
- Define the parameters of serial (RS232/RS485) line;
- Update the device.

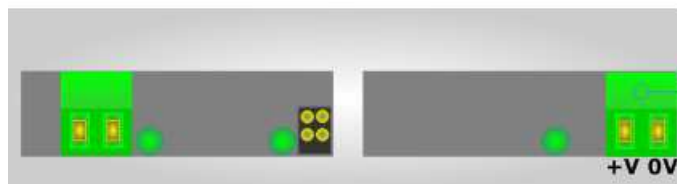
## POWER SUPPLY:

The devices can be powered at 8...19V AC and 8...35V DC. For more details see the two tables below.

VAC 		VDC 	
Vmin	Vmax	Vmin	Vmax
8V	19V	8V	35V

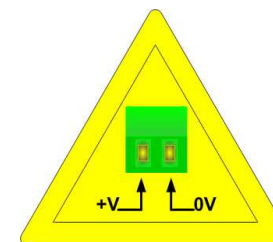
Consumption at 24V DC:

Device	Consumption [W/VA]
HD67018-B2	4



**Connector1:**  
Power Supply  
0V = Ground  
+V = Positive wire  
V AC: min 8V ; max 21V  
V DC: min 8V ; max 35V

**Caution: Do not reverse the polarity power**



HD67018-B2

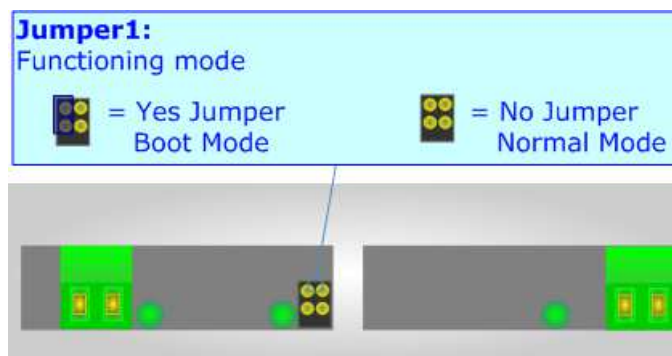
**FUNCTION MODES:**

The device has got two functions mode depending of the position of the 'Jumper1' of HD67018-B2:

- The first, without the jumper inserted, is used for the normal working of the device.
- The second, with the jumper inserted, is used to upload the Project/Firmware.

For the operations to follow for the updating, see 'UPDATE DEVICE' section.

According to the functioning mode, the LEDs will have specific functions, see 'LEDS' section.

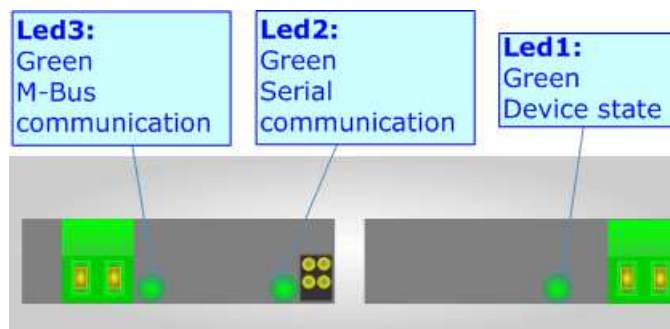




## LEDS:

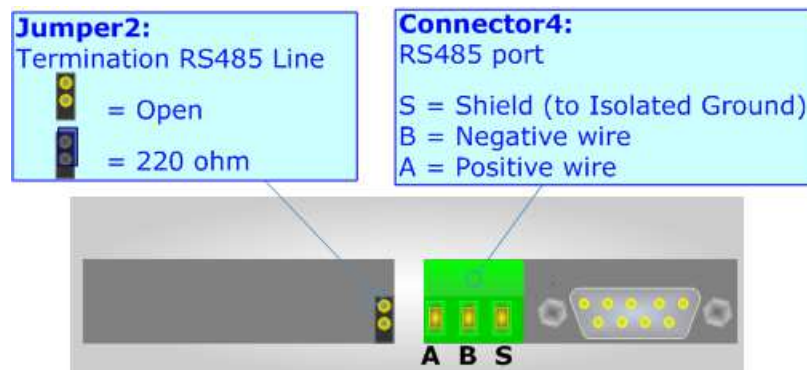
The device has got three LEDs that are used to give information about the functioning status.  
The various meanings of the LEDs are described in the table below.

LED	Normal Mode	Boot Mode
1: Device state (green)	Blinks slowly (~1Hz)	Blinks quickly
2: Serial communication (green)	Blinks slowly (~1Hz) when no characters are received by the serial. Blinks quickly for a while when receives something from the serial	Off
3: M-Bus communication (green)	Blinks slowly (~1Hz) when no characters are received by the M-Bus. Blinks quickly for a while when receives something from the M-Bus	Off



## RS485:

To terminate the RS485 line with a 220Ω resistor it is necessary to insert the Jumper2 like in figure.



The maximum length of the cable should be 1200m (4000 feet).

Here some codes of cables:

- Belden: p/n 8132 - 2x 28AWG stranded twisted pairs conductor + foil shield + braid shield;
- Belden p/n 82842 - 2x 24AWG stranded twisted pairs conductor + foil shield + braid shield;
- Tasker: p/n C521 - 1x 24AWG twisted pair conductor + foil shield + braid shield;
- Tasker: p/n C522 - 2x 24AWG twisted pairs conductor + foil shield + braid shield.

## RS232:

The connection from RS232 socket to a serial port (example one from a personal computer) must be made with a NULL MODEM cable (a serial cable where the pins 2 and 3 are crossed).

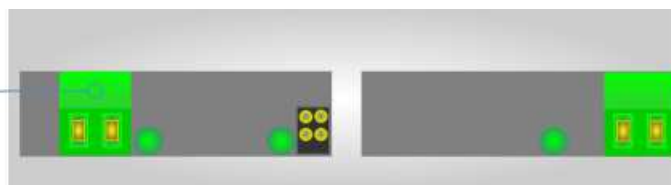
It is recommended that the RS232 cable not exceed 15 meters.

## M-BUS:

The M-Bus is a unpolarized bus.

A two wire standard telephone cable (JYStY N\*2\*0.8 mm) is used as the transmission medium for the M-Bus. The maximum distance between a slave and the repeater is 350m; this length corresponds to a cable resistance of up 29 $\Omega$ . This distance applies for the standard configuration having Baud rates between 300 and 9600 Baud, and a maximum of 250 slaves. The maximum distance can be increased by limiting the Baud rate and using fewer slaves, but the bus voltage in the space state must at no point in a segment fall below 12V, because of the remote powering of the slaves. In the standard configuration the total cable length should not exceed 1000m, in order to meet the requirement of a maximum cable capacitance of 180nF. *(Taken from M-Bus specifics)*

**Connector2:**  
M-Bus slave  
(unpolarized)



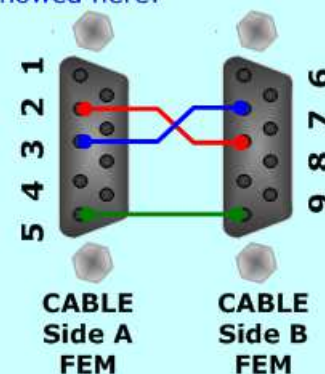
**Connector3:**  
RS232 port (D-SUB9-Male)

PIN2 = RX  
PIN3 = TX  
PIN5 = GND (to Isolated Ground)

Used for:

- Programming port
- Serial communication

To connect the device to the COM port of a PC in order to set it you have to use the programming cable AC34107 or a cable made as showed here:



**USE OF COMPOSITOR SW67018:**

To configure the Converter, use the available software that runs with Windows called SW67018. It is downloadable on the site [www.adfweb.com](http://www.adfweb.com) and its operation is described in this document. *(This manual is referenced to the last version of the software present on our web site)*. The software works with MSWindows (XP, Vista, Seven, 8; 32/64bit).

When launching the SW67018, the window below appears (Fig. 2).

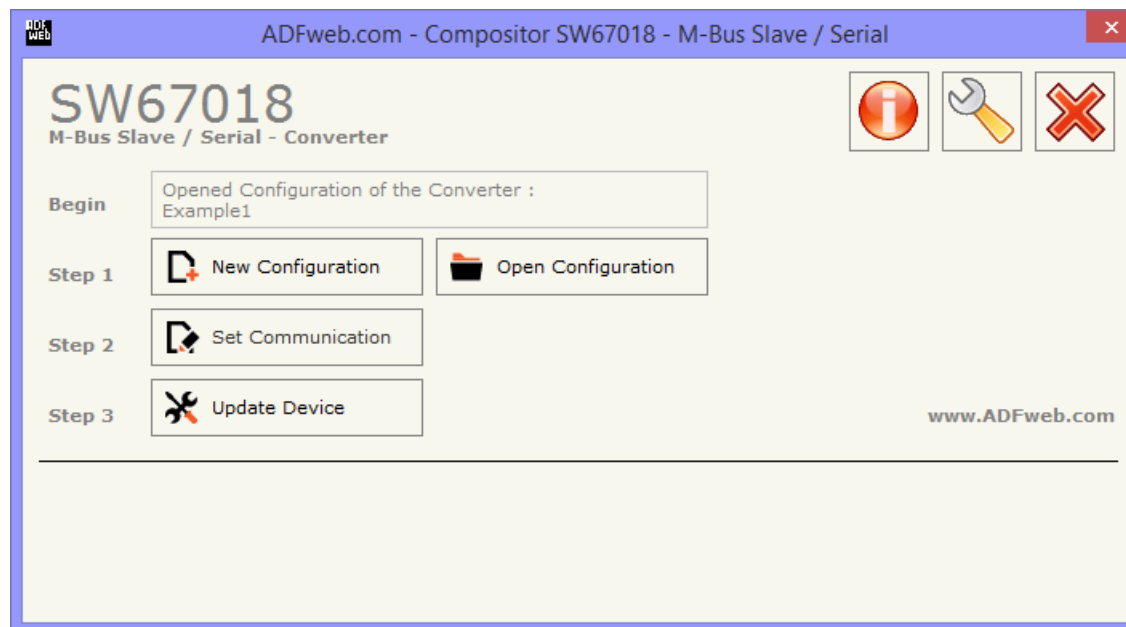
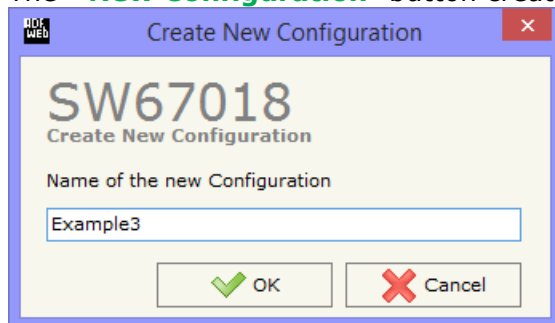


Figure 2: Main window for SW67018

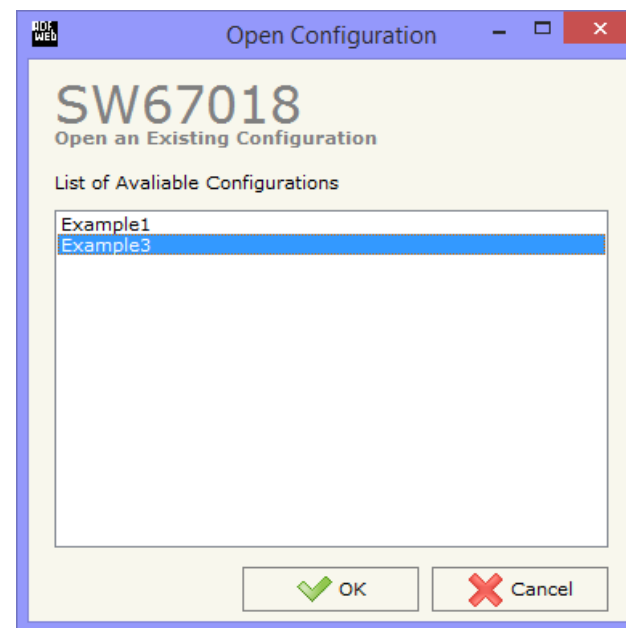
**NEW CONFIGURATION / OPEN CONFIGURATION:**

The “**New Configuration**” button creates the folder which contains the entire device’s configuration.




A device’s configuration can also be imported or exported:

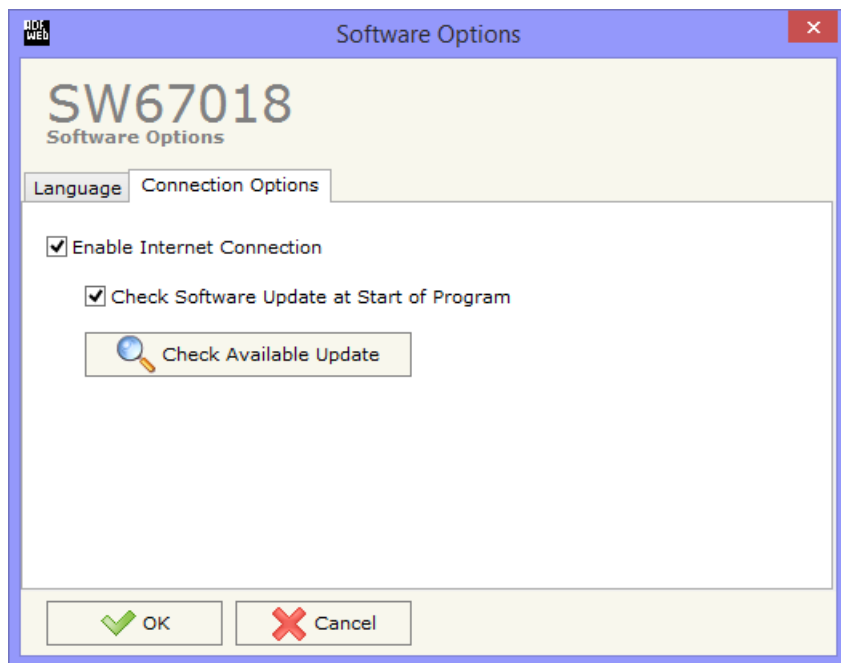
- To clone the configurations of a programmable “M-Bus Slave / Serial - Converter” in order to configure another device in the same manner, it is necessary to maintain the folder and all its contents;
- To clone a project in order to obtain a different version of the project, it is sufficient to duplicate the project folder with another name and open the new folder with the button “**Open Configuration**”.



## SOFTWARE OPTIONS:

By pressing the “**Settings**” () button there is the possibility to change the language of the software and check the updatings for the compositor.

In the section “Language” it is possible to change the language of the software.



In the section “Connection Options”, it is possible to check if there are some updatings of the software compositor in ADFweb.com website. Checking the option “**Check Software Update at Start of Program**”, the SW67018 check automatically if there are updatings when it is launched.

**SET COMMUNICATION:**

This section define the fundamental communication parameters of two buses, M-Bus and serial.

By Pressing the **"Set Communication"** button from the main window for SW67018 (Fig. 2) the window "Set Communication" appears (Fig. 3).

The means of the fields for the "Serial" section are:

- In the field **"Baudrate"** the baudrate for the serial line is defined;
- In the field **"Parity"** the parity of the serial line is defined.

The means of the fields for the "M-Bus Slave" section are:

- In the field **"Baudrate"** the baudrate for the M-Bus line is defined;
- In the field **"Parity"** the parity of the M-Bus line is defined.

The screenshot shows a software window titled "Set Communication" with a close button in the top right corner. The window content is for device "SW67018" and is titled "Set Communication Setting". It features two main configuration sections. The "Serial" section includes a "Baudrate" dropdown menu set to "2400" and a "Parity" dropdown menu set to "EVEN". The "M-Bus Slave" section includes a "Baudrate" dropdown menu set to "9600" and a "Parity" dropdown menu set to "ODD". At the bottom of the window, there are two buttons: "OK" with a green checkmark icon and "Cancel" with a red X icon.

Figure 3: "Set Communication" window

**UPDATE DEVICE:**

By pressing the **"Update Device"** button, it is possible to load the created Configuration into the device; and also the Firmware, if necessary.

In order to load the parameters or update the firmware in the device, follow these instructions:

- Turn off the Device;
- Connect the RS232 cable from your PC to the Converter;
- Put Jumper1 in "Boot" position (see "FUNCTION MODES" section);
- Turn on the device;
- Select the **"COM port"** and press the **"Connect"** button;
- Check the "Device state" LED. It must blink quickly (see "LEDS" section);
- Press the **"Next"** button;
- Select which operations you want to do.
- Press the **"Execute update firmware"** button to start the upload;
- When all the operations are "OK" turn off the device;
- Put Jumper1 in "Normal" position;
- Disconnect the RS232 Cable;
- Turn on the device.

At this point the configuration/firmware on the device is correctly updated.

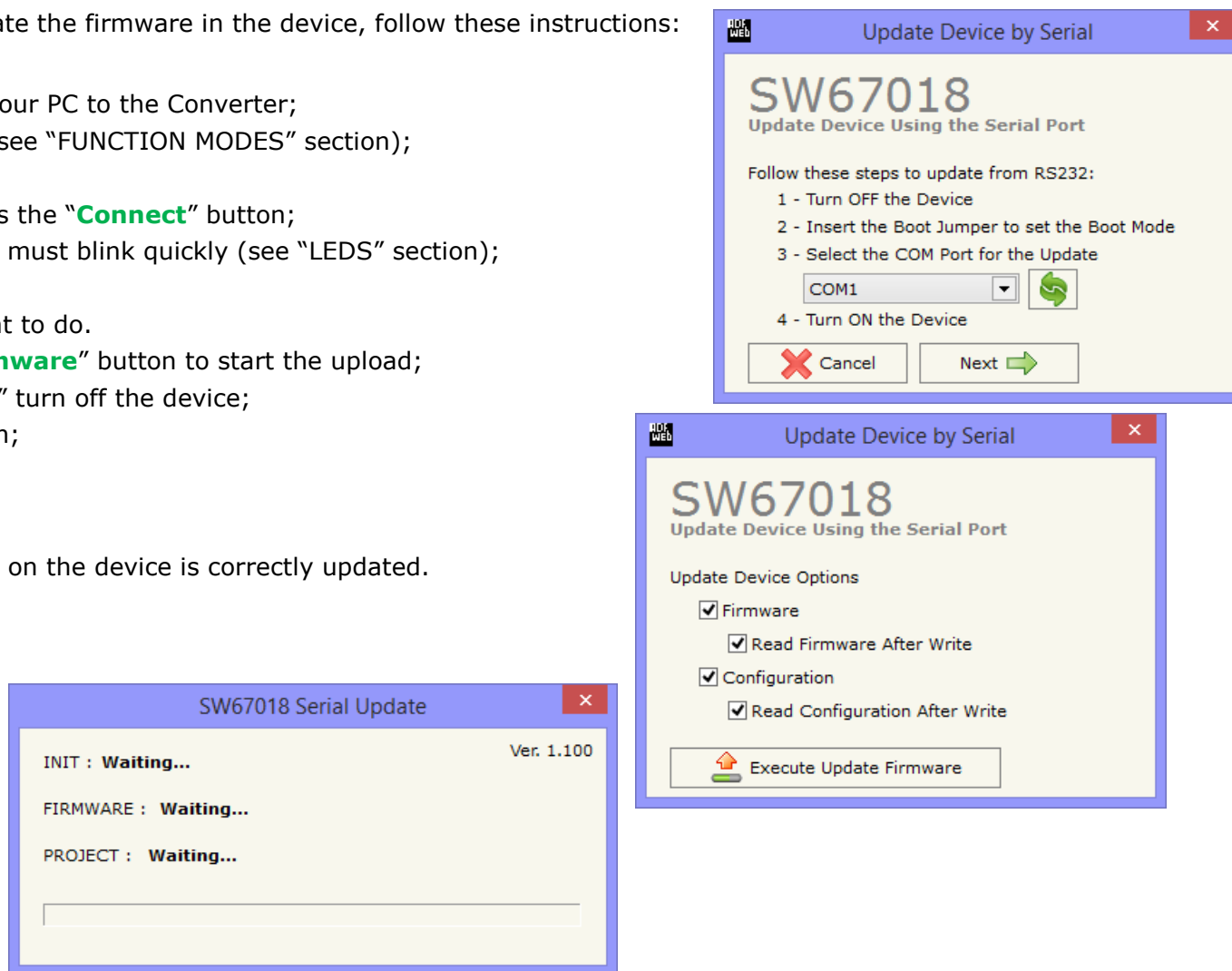


Figure 4: "Update Device" windows



**Note:**

When you install a new version of the software, if it is the first time it is better you do the update of the Firmware in the HD67018-B2 device.

**Note:**

When you receive the device, for the first time, you also have to update the Firmware in the HD67018-B2 device.

**Warning:**

If Fig. 5 appears when you try to do the Update try these points before seeking assistance:

- Check if the serial COM port selected is the correct one;
- Check if the serial cable is connected between the PC and the device;
- Try to repeat the operations for the updating;
- If you are using a USB↔RS232 converter, try to use a native COM port;
- Try with another PC;
- Try to restart the PC;
- If you are using the program inside a Virtual Machine, try to use in the main Operating System;
- If you are using Windows 8, Seven or Vista, make sure that you have the administrator rights;
- Take attention at Firewall lock.

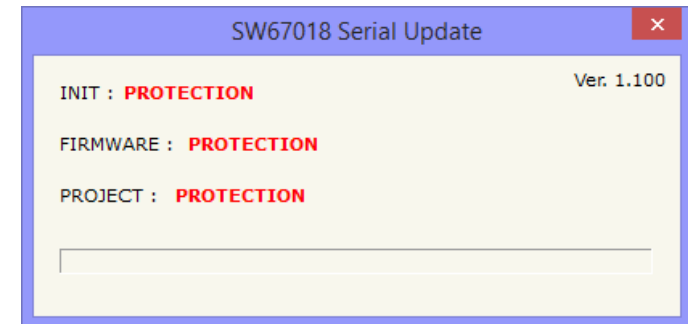
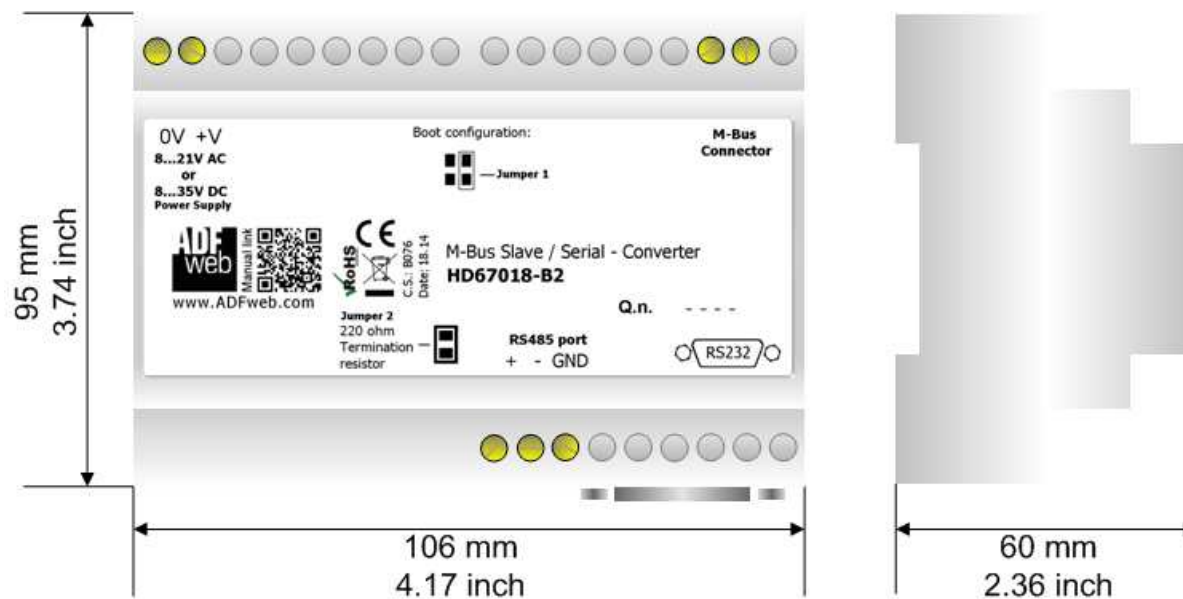


Figure 5: "Protection" window



In the case of HD67018-B2 you have to use the software "SW67018": [www.adfweb.com/download/filefold/SW67018.zip](http://www.adfweb.com/download/filefold/SW67018.zip).

## MECHANICAL DIMENSIONS:



Housing: PVC  
Weight: 200g (Approx)

Figure 6: Mechanical dimensions scheme for HD67018-B2

## ORDERING INFORMATION:

The ordering part number is formed by a valid combination of the following:

### **HD67018 – B 2**

#### **Connectors Type**

2: Fixed 5mm Screw Terminal

#### **Enclosure Type**

B: 6M, 35mm DIN Rail mounting

#### **Device Family**

HD67018: M-Bus Slave / Serial - Converter

Order Code: **HD67018-B2** - M-Bus Slave / Serial – Converter (Serial: RS232/RS485)

## ACCESSORIES:

Order Code: **AC34001** - 35mm Rail DIN - Power Supply 220/240V AC 50/60Hz – 12 V AC

Order Code: **AC34002** - 35mm Rail DIN - Power Supply 110V AC 50/60Hz – 12 V AC

**DISCLAIMER:**

All technical content within this document can be modified without notice. The content of the document is a under continual renewal. For losses due to fire, earthquake, third party access or other accidents, or intentional or accidental abuse, misuse, or use under abnormal conditions repairs are charged to the user. ADFweb.com S.r.l. will not be liable for accidental loss of use or inability to use this product, such as loss of business income. ADFweb.com S.r.l. shall not be liable for consequences of improper use.

**OTHER REGULATIONS AND STANDARDS:****WEEE INFORMATION**

Disposal of old electrical and electronic equipment (as in the European Union and other European countries with separate collection systems).

■ This symbol on the product or on its packaging indicates that this product may not be treated as household rubbish. Instead, it should be taken to an applicable collection point for the recycling of electrical and electronic equipment. If the product is disposed correctly, you will help prevent potential negative environmental factors and impact of human health, which could otherwise be caused by inappropriate disposal. The recycling of materials will help to conserve natural resources. For more information about recycling this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

**RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE**

The device respects the 2002/95/EC Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (commonly referred to as Restriction of Hazardous Substances Directive or RoHS).

**CE MARKING**

The product conforms with the essential requirements of the applicable EC directives.

## WARRANTIES AND TECHNICAL SUPPORT:

For fast and easy technical support for your ADFweb.com SRL products, consult our internet support at [www.adfweb.com](http://www.adfweb.com). Otherwise contact us at the address [support@adfweb.com](mailto:support@adfweb.com)

## RETURN POLICY:

If while using your product you have any problem and you wish to exchange or repair it, please do the following:

- Obtain a Product Return Number (PRN) from our internet support at [www.adfweb.com](http://www.adfweb.com). Together with the request, you need to provide detailed information about the problem.
- Send the product to the address provided with the PRN, having prepaid the shipping costs (shipment costs billed to us will not be accepted).

If the product is within the warranty of twelve months, it will be repaired or exchanged and returned within three weeks. If the product is no longer under warranty, you will receive a repair estimate.



**ADFweb.com S.r.l.**  
Via Strada Nuova, 17  
IT-31010 Mareno di Piave  
TREVISO (Italy)  
Phone +39.0438.30.91.31  
Fax +39.0438.49.20.99  
[www.adfweb.com](http://www.adfweb.com)

